ICT Final Revision

First Axis
Lesson 2: Computer networking devices

❑**Networks:** It is a group of people or things linked together for common goals.

❑**Computer Network:** Connects computers together to share important information and data.

❑**Establishing a connection: – There are two types of connection:**
Wired Networks Wires and cables that are connected to holes in devices are used **called ports.**

Wireless networks: – Through which devices are connected without wires or cables using wireless **radio waves or "Wi –Fi".**

❑**Port:** It is the place through which input and output devices are connected to the device via cables.

❑**Networking devices:** Computers need different devices to connect to the network, to transfer data.

1– Switches: It works in a similar way to a hub, but it can send data to a specific device over a network, which helps facilitate and speed up communication. It connects to a specific device within a single network.

Note: Switches are smart devices because they send data to only the specified device within the network.

2 –Modem: A device that connects a **– LAN** to the Internet. It converts the signal from the Internet service provider (ISP) into a digital signal. Devices can receive the signal and recognize it . It is used **to connect users to the Internet**
solve problems . It is a comprehensive term for computer applications that perform tasks that mimic human thinking.

Lesson 3: Technology and artificial intelligence

❑It is possible for us that each of "**virtual reality, augmented reality, and artificial intelligence**" are future and emerging types of Technology, but it is currently used in the education sector and daily life.

❑ **Virtual Reality (VR):**

–A virtual 3D environment that allows users to explore and interact with their surroundings as if they were real.

❑**Augmented Reality (AR):**
–Combines the real world with virtual reality by adding computer–generated imagery.
–Augmentation can be used by: Smartphone or tablet camera.

❑**AI artificial intelligence:**
–It is the ability of a machine like a computer to think and learn.
–The computer can learn by analyzing the provided examples, for example: –"**maybe A smartphone or email program can predict the next word you type of the words you wrote earlier.**"

Lesson 4: Evaluation Cutting–Edge technology

⊛ **Advanced Technology:** The latest and most advanced version of a service or product.

⊛ **assistive technology:** It helps people of determination to perform tasks that they find difficult, **such as:**

⊛ Programs to convert speech to text and text to audio

⊛ Hearing aids

⊛ screen enlargement software

⊛ Screen magnification software

⊛ Scanning and reading machine

Advanced technology such as (artificial intelligence, augmented reality, and virtual reality) has made changes in life.
–These changes are emerging in exciting new ways to help: education, improve lives and integrate into society

→**smart gloves:** In the category of assistive technology, it enables deaf people to translate their signals instantly into textual or spoken output.

- **Note : –** It is important that we evaluate these new technologies objectively and rationally, as they are constantly expanding the horizons of knowledge.

- Through evaluation, society as a whole is better informed to make decisions about the use and development of these technologies.

→ **User experience**

User experience describes how people use and interact with a product, and how they evaluate their experiences.

–User experience is often divided into different areas, and can be positive or negative.

To evaluate the experience of a product, you must first answer a set of questions:

Valuable
Accessible
useful
Usable
Credible
Findable
Desirable

→ **Meeting the needs**

User experience is related to the development of products and services.

Lesson 5: Digital research skills

📖 **Useful digital research tools "Search online": –**

📖 **There are many digital research tools, including**

Search Engines – Databases – Specialized Database – Database Search

1 – Search engines :

–Search engines help people search websites based on key words and phrases.

–It is characterized by being: easy to use and very fast, and often shows many results.

to remember : You should use your evaluation skills to ensure that the content you choose is reliable, accurate, and unbiased.

2 – Databases

–phrase on groups from Information is stored usually in System my computer and can be accessed free of charge from during school or library

–Prepare rules Data from good places Search on the information through : Magazines Newspapers and books Bookmark.

General databases : They address many topics , examples of which are: Egyptian Knowledge Bank EKB .

subject database : having food topic one Just an example: leading businesses

3 – Libraries catalogs :

–index the library he a base data , include all Sources and items that contain it Library .

–may be It includes search in index the library books published newly, With what in that books e that contains latest Researches in specific topic .

4 –Conducting Search the database

When searching in any database, you should consider the following:

–Use keyword search

–You can use other fields available in the database to narrow your search, such as: author name or journal title

–Limiting your search to the last few years will help you find the latest research.

Lesson 7: Operating systems

Operating systems: It is software that manage computer functions like **memory** And engines **Discs drivers** and printers _ _ and other devices. ...

→ Operating systems include ancillary devices **such as** screen readers and magnifiers.

→Operating systems manage **computer hardware and software.**

→Operating systems act **as a translator** enabling the user to Communicate with the computer without having to know its languages

❑ **Operating systems:** Most computers are pre-loaded with operating systems. It varies as follows:

1 – Microsoft Windows: It is used in 75% of computers globally "the most common".

2 – MacOS operating system: – Apple devices and is used in .15% of the global market

b) Mobile operating systems:

1- Android system _ _ _ The most popular mobile operating system, accounting, is open source

2- Apple iOS _ _ **It is used on iPhone devices,** It is a closed source system

❑ **Open source and closed source operating systems:**

Open source system: Anyone can read or change the programming code, **such as** the Android operating system

Closed source system: – The general public cannot see its programming code to change it, **such as :** the Apple OS operating system

❑ **Mobile operating system functions:**

– Sending messages to   – Connecting to the Internet   – Video chat   –Touch work.

c) Advanced operating systems:

A – Robot Operating System (ROS) : It is an open source program for building applications Robotic .

B – Self-driving car operating systems: developed by many companies, including: Apple, Microsoft, and Google , as well as private car companies.

❑ **programming languages:**

Programming languages give commands to a computer in the form of **code.**

–Programming languages have evolved over time from simple machine language (binary system) **to high-level languages.**

–Programming languages are usually open source. Where anyone can see, modify or distribute the code.

Hypertext Markup Language HTML: Programmers use it to create web pages. It is the most popular language due to its ease of learning and use.

Lesson 8 : Website Designing

❑ **HTML markup language:** It is the standard programming **language** used to create static web pages

❑ **HTML tags: –**

Describes the appearance of a web page , and it consists of a series of – basic elements to create it , **such as :** (headings, paragraphs, links, and images)

–**Web browsers read** documents written in Hypertext Markup Language

–**Browsers display** content according to the HTML tag

❑ **Hypertext Markup Language tags consist of three main parts: –**

*Opening tag   *Content   * Closing tag

❑ **HTML tags–:**

HTML Tag	Element
....	The largest address
....	text or paragraphs
	Size and font size
< img src ="" alt=" ">	To add an image
....	Subtitle
....	Smallest address
 	font color
<i> .... </i>	bold writing (italics)
 text 	Bold writing
<a> 	Add a hyperlink

❑ **Things to consider when designing a website:**

headline: You should put the largest title on the page at the top to get attention.

Sub-headings: It facilitates careful examination of the text so that the reader can find the information he wants.

Pictures: attention and can trigger different emotions.

Text: The text divided into paragraphs makes it easier for the reader to search for the information he wants.

Second Axes
Lesson 2: How to deal with electronic games

☐ Electronic games

- These are games found on electronic devices that can be played with friends over the Internet and have some features such as:
1- Helps enhance critical and creative thinking
2- Encourages teamwork

- These games can be very entertaining, but they affect health and entail multiple risks.

☐ Risks of electronic games

▪ Physical risks:-

- Impairing the ability to sleep due to increased stimulation, which affects the sleep cycle

- The risk of weight gain as a result of not exercising and not paying attention to healthy eating habits while playing.

- Eye strain – Back problems – headache

▪ Psychological risks:-

- Anxiety and depression
- Aggressiveness
- It may strain an individual's relationships with his family and friends

▪ Security risks:-

- Multiplayer games can pose a significant security risk because:
If you share too much personal information in these games, you may give strangers access to your name, email, phone number, and address.
Large online gaming communities are full of cyberbullies and hackers who may leak your personal information, which makes viruses easy to spread.

☐ Play electronic games responsibly

- Play and chat only with people you know and trust
- Do not publish your personal information Online
- Don't use your webcam unless your settings are private
- Be responsible for managing your time –
- Be careful not to replace real life activities with electronic games

☐ Note:-
Respecting time periods helps you avoid bad habits related to electronic gaming
Real life activities include spending time with family and friends, completing schoolwork, adopting a healthy diet, and following a moderate sleep regime

☐ The role of the family in reducing the impact of electronic games:

- Do not be afraid to turn to your parents whenever you face any dangers, as they want to help you by:
Family discussions........... Increased control over you when using the Internet

Lesson 3: Protect yourself from digital theft

It is irresponsible to leave your private devices at risk without taking appropriate security measures.

☐ You can effectively protect your devices from digital theft through many methods such as:

→ Passwords:
most secure password should consist of 8 random letters, numbers and symbols

→ MFA multi-factor authentication:
Multi-factor authentication requires at least two ways to identify you , usually through

- Passwords, PINs, security codes, or personal questions

→ **Fingerprint authentication**

You usually scan your thumb, as a way to confirm your identity

→ **Face recognition**

The facial recognition software will scan your face using your camera, allowing only your face to open your device or the apps on it

→ **Full disk encryption**

Encryption scrambles your information so that only you can access it on your device, provided you set your password

❑ **If you suspect that your data has been compromised, you should:**

- **Report data theft**
- **Tell a parent or a trusted adult so they can inform the relevant authorities**
- **Tell your family and friends you communicate with online**

❑ **Note:-**

- Companies especially need to protect their websites and customer information

- Egypt established a **personal data protection law** In 2020 to protect its citizens, it is a law that requires companies to use strict security principles and standards to protect their data

- If a company becomes a victim of data theft, they must report it immediately and notify their customers directly as well

❑ **Cybersecurity:** It is the protection of systems, networks, devices, and data from electronic attacks that may be exposed to when using information and communications technology applications

❑ **Internet safety precautions:-**

Use secure internet browsers such as **Google** , and antivirus software on your devices

Allow only your friends and family to see your social media pages, keep your pages private

Do not communicate with people you do not know or who make you feel uncomfortable

- Do not share your personal information online
- Use strong passwords and change them every three months
- Make sure that the sites you frequent are "genuine, safe, and appropriate for your age
- Check the information you find to make sure it is accurate

❑ **Types of cyber threats:-**

1. **"Malware":** This is a dangerous cyber threat and you may fall victim to this software regardless of how careful you areYou can be exposed to these threats through the use of unsecured Wi-Fi networks.

Examples of malware:-

- Scareware : It takes the form of viral alerts telling you to click on a link to get rid of this virus, but the link is the virus itself.
- Smartphone malware.

2. "Spoofing":– Cybercriminals pretend to be a company or a famous person to force you to reveal your personal information or click on unsafe links.

If you do this, you are at risk of: your personal information being leaked…your money being stolen…the virus being installed on your devices

Common examples of impersonation:–

- Create fake domains that mimic legitimate businesses
- Create an email account with the name of a trusted service or even an individual you know personally

❑ **How to deal with cyber threats:–**

Stay calm and take immediate action such as warning acquaintances not to open any suspicious content.

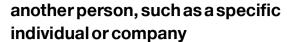Use an anti–virus program to scan your computer and eliminate viruses.

Update security settings and change passwords for all your accounts.

Inform a trusted adult.

Create your own personal online safety plan.

lesson 5: Copyright and electronic financial trading

📖 **Copyright includes :–**

- Copyright protects creators and gives them ownership rights to their works
- Intellectual rights: It is an invention, innovation, or idea of a person that is protected by law from being copied by another person, such as a specific individual or company
- Intellectual property rights include: written, visual and audio materials, video clips, and materials from the Internet
- "**Creative Commons**" refers to works whose creator has given permission to share them
- Works that have previously been approved for use, such as works found in data libraries, such as the Egyptian Knowledge Bank
- Egypt considers works to be public property if the author has been dead for at least 50 years
- These works do not require permission from the author

📖 **stock exchange:–**

- It is a market in which buyers and sellers exchange units of the company's shares. These shares are called shares
- The Egyptian Stock Exchange gives citizens the opportunity to invest in various sectors such as food, clothing, or oil
- Investors in traditional environments rely on financial intermediaries

📖 **A broker:–**

- They are individuals involved in buying and selling shares.

📖 **Steps for smart investors to choose companies:–**

- They research multiple companies before choosing which one to invest in
- They analyze the markets to know the fluctuations of companies' stocks

- They study the products and services offered by companies and their compatibility with their personal investment goals

📖**Electronic financial trading:-**
- Making the process of buying and selling stocks more effective as it is done via the Internet and investors have greater power
- Enables investors to execute deals independently through websites or applications
- It provides investors with easy-to-use alternatives, such as using advisory robots, although it is possible to use a financial intermediary
- It provides investment potential for a large group of individuals who may lack the means to invest
- It makes it easier for different companies to execute deals with each other quickly wherever they are in the world

📖**Advice bots:-**These are online applications that provide guidance and financial services

📖**Electronic financial trading platforms have become common with the spread of the Internet**

lesson 6: Cloud Storage of Files

❑**Cloud Computing:-**
On-demand technology that allows data and programs to be stored and accessed by remote servers over the Internet
It allows the user to access files and data at any time and anywhere easily and conveniently

Examples of cloud computing service providers:-

OneDrive   google Drive   Dropbox

You can access the OneDrive app through**Microsoft 365**.

Remote servers enable users who are not connected to the local network to access and manage their data, files, -and applications over the Internet

❑**Data encryption:** It is the process of converting data into -codes to prevent access to it by unauthorized parties

❑**Pros and cons of using cloud computing:-**

Advantages	Disadvantages
▪ It improves the storage capacity on your devices by relying on cloud storage services ▪ It provides the ability to access files from multiple devices provided that they are connected to the Internet ▪ Provides backup copies of your files ▪ Provides an additional layer of security with password-protected data storage and data encryption ▪ Provides the ability to share files directly with authorized users	▪ It requires stable internet access, and when it is interrupted, you will not be able to access your files -stored in the cloud Cloud storage is a fee-based service, "a certain amount for storing files," and the more you need for storage capacity, the higher -the amount ▪ Cloud services are safe and secure, but there is a small risk, such as: If the cloud service you use is exposed to a data breach, this may reveal your information

❑ **Data encryption:–** It converts data into a code to prevent unauthorized user access.

❑ **Storing files in the cloud:–**

Cloud computing makes it possible to have a document management system to organize and quickly find documents by:

- Create separate folders for different data categories
- Separating school and personal information
- Naming folders and subfolders to make it easier for you to find what you are looking for
- Keep files in separate folders based on their types

❑ **How to protect files on computational storage platforms:**

- Create strong passwords for your accounts and files on computational storage platforms
- Use multi–factor authentication to provide additional protection.
- Use large, reputable cloud storage services that offer multi– factor authentication.

Lesson 7: Cloud Computing application

✎ **CloudComputing: :–** It is storing data or programs and accessing them over the Internet.

✎ **The most popular programs available for dealing with cloud computing applications:**

1– Microsoft365
2– GoogleWorkspace

✎ **Microsoft365 Provides a range of productivity –: applications such as:–**

-   Microsoft**Teams**
-   **Word**. word
-   **Power Point**PowerPoint
-   **Excel**_
-   **OneDrive**_
-   outlook **Outlook**

–:Note

Word To write down your thoughts, a story, or a can be used school assignment.

PowerPoint .helps I have to create a show

OneDrive .helps Share your work with your colleagues

outlook_ .Email application

✎ **OneDrive platform:**

-   Allows you to store and share files
-   Easy to use and can be accessed from any device

✎ **How to upload files or folders:–**

1– Open the**Google Chrome browser** .
2– Log in to Microsoft Office
3– Choose OneDrive
4– Choose Upload, then Upload files or folders
5– Select the files or folders you want to upload
6– Choose to open or choose a folder

How to save a file in OneDrive –:

1– Choose a file, then save a copy, then choose**One Drive**
2– Choose "Enter file name" and type a name
3– Choose Save